

Underground Sound Studios_1972-1995

I have been interested in music my entire life growing up in Brooklyn, NY with a musical family. I played in local bands during my college and graduate studies at St. John's University, Queens, NY and Brooklyn Polytechnic, NY, respectively. In 1967, I received a Ph.D. degree in Infrared Spectroscopy and Crystallography and took a position as a diffraction physicist at the Naval Research Laboratory's Laboratory for the Structure of Matter in Washington DC, headed by Noble laureate Dr. Jerome Karle. After a few years, my interest in music resurfaced and I



Figure 1. Sony TC355

began collaborating with Jerry Ressler writing and recording original songs, with a Sony TC355 reel-to-reel which was outfitted with sound on sound.

As the music evolved and the band grew from two to 4 and from acoustic to electric, noise levels increased. So, we decided to build a recording studio to keep peace with the neighbors and allow my young son to sleep. Living in a split level home in Kettering, MD, I explored the idea of building a recording studio in the unfinished basement. Never having done this before, we consulted with a local company called SSI, founded by Neil Muncy. Neil was a gifted analog



Figure 2. Seated at the vertical console

designer and pioneered the application of operational amplifier technology in custom-built multichannel recording consoles and related equipment. I purchased an SS3 8x2 mixer and an MXM 8x8 switcher along with ancillary electronics and we built our first vertical console, Figure 2, and upgraded to a Revox A771/2 tape recorder, with built in Sound on Sound, as seen in Figure 3.

As the picture shows, I am monitoring with headphones, since the basement area was not divided into separate recording and live areas.

In addition to our own recording, we opened the studio, appropriately called Underground Sound, to commercial business. As commercial



Figure 3. Revox A77

projects increased and our understanding about recording technology grew, we decided to partition the 25' x 25' area into an acoustically isolated control room, isolation booth and live area. This was the first time I thought about acoustics! I

began studying sound isolation theory and finalized a design in which we constructed three completely isolated rooms, with the walls floating on neoprene isolators, Figure 4, and the ceilings resting on the floated walls. All surfaces consisted of multiple layers of 5/8" drywall. Being a sub-basement, the floor was not isolated.



Figure 4. Walls shown floating on neoprene isolators

This turned out to be a much larger challenge than ever imagined. Not only were we acoustically isolating the new 3 room studio, we also designed and installed the HVAC system, the AC wiring, plumbing, lighting, etc. In Figure 5 we show an in-progress photo of the construction, while beginning to dismantle the old vertical console.



Figure 5. New studio construction and dismantling the old vertical console

patch bay routing, etc. In Figure 5, we see a photo with the new console in-progress, along with the wiring, Fig. 6, feeding our new patch bay. To complete the new control room, we purchased a Scully 100 1" 8 track, Fig. 7, and Scully 280B 2 track, Fig. 8, recorders. With the addition of UREI vintage 1970 speakers we were operational.

When construction was completed, the next challenge was the new console. We worked with Jay Kingery of RCI in Silver Spring Maryland to design and build the new console furniture. Electrically outfitting the new console required learning about grounding, wiring, 600 ohm termination, signal flow and



Figure 6. New horizontal console in-progress, with wiring to the new patch



Figure 7. Scully 100 8 track recorder



Figure 8. Scully 280B 2 track recorder

1 2 3 4 5 6 7 8 9 10 11
 U N D E R G R O U N D
 < < - S O U N D - > >
 16 TRACK PROFESSIONAL RECORDING

Control Room






12003 Wimbledon St., Largo, Md. 20772
 (301) 249-5647



Figure 9. New Underground Sound

In Figure 9, we show the brochure of the new and improved Underground Sound Recording Studio, along with photos of the new control room, iso booth and live room.

The first recordings of our own material were done with Tony Heiberger on drums, Jerry Ressler on lead guitar, a guest bass player and Peter D'Antonio on vocals/piano. All of the following recordings can be auditioned on Soundcloud (<https://soundcloud.com/user-276560580-305858113>). This group can be found in the D'Antonio Ressler and Heiberger Band section.

	1 Don't Think About It	▶ 19
	2 Love's Dream	▶ 27
	3 Makin' Love	▶ 12
	4 Morning Light	▶ 15
	5 No Time Is The Right Time	▶ 12
	6 Our Song	▶ 10
	7 Rejection	▶ 10
	8 Reason or Rhyme	▶ 41







Credits: Jerry Ressler composed Morning Light and Reason or Rhyme, the rest are compositions by D'Antonio. Love's Dream was the first song recorded in the new studio, with the rest recorded in the rec room on the Revox. The studio was built to improve the quality of our recordings on the Sony and Revox and I think you can hear a quantum improvement on Love's Dream.

The next group of original songs were recorded in the studio by Friends and Lovers, consisting of John Morrison on guitar and vocals, Bette Ojala on vocals, Tom Chilastris on drums and me on bass and vocals. We had several guests join us, but honestly, I can't remember the names.

	1 You're All My Seasons	▶ 110
	2 Saltine Crackers	▶ 63
	3 Friend	▶ 43
	4 Warm Hand	▶ 29
	5 American Way	▶ 47
	6 Beautiful and Simple	▶ 35
	7 Expectations	▶ 28
	8 Fine Time	▶ 22
	9 Trip To Maine	▶ 38
	10 You Got The Stuff	▶ 52






Credits: 1 Judy Altura lyrics, D'Antonio music; 2, 3, and 4, lyrics Ojala, music D'Antonio; 5 lyrics Holly Morrison, music D'Antonio; 6 lyrics Ojala, music D'Antonio; 7 lyrics and music D'Antonio; 8 lyrics & music John Morrison and D'Antonio; 9 lyrics and music Holly and John Morrison; 10 music D'Antonio.

The next set of recordings were done with a new band consisting of Leroy Ragland on guitar/vocals, Tom Chilastrri on drums, Ned Judy on keyboards, Heidi Martin on vocals, Peter D'Antonio on bass/vocals. These recordings can be found in the PeterLeroyHeidiTomNed Band section on the Soundcloud site.

 1 Fire	▶ 61
 2 Now Is Forever	▶ 47
 3 Pedal To The Metal	▶ 48
 4 She Was	▶ 26
 5 Take It Easy	▶ 25
 6 Turn Your Love My Way	▶ 36






Credits: 1-5 lyrics and music D'Antonio; 6 music Mark Brey/band

The next set of original Jingles were recorded with the same band












 1 Bayside Realty	▶ 15
 2 Kemp Mill	▶ 13
 3 Marlow Heights 1	▶ 10
 4 Marlow Heights 2	▶ 10
 5 Peoples Security Bank	▶ 24

Credits: 1 lyrics, music and lead vocal Doug Morgan; 2-5 lyrics and music D'Antonio

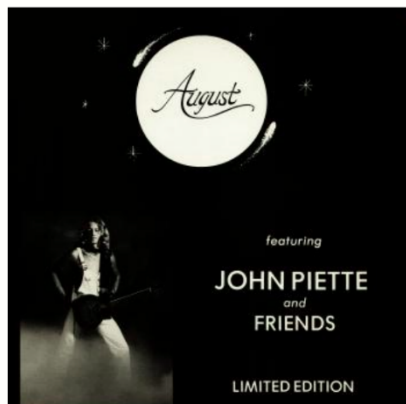
The last group of songs was recorded by my cover band called the Classic Rock All Stars found in the CRAS section. The band consists of Leroy Ragland guitar/vocals; Ned Judy keyboards/vocals; John Jernigan drums/vocals, Lloyd Pinchback on sax/flute; Peter D'Antonio bass/vocals. These recordings were made at a project studio at RPG Diffusor Systems, Inc. on a custom Digital Audio Workstation. Recording/Mixing Ned Judy and Peter D'Antonio.

 1 Rikki Don't Lose That Number	▶ 61
 2 Black Magic Woman	▶ 30
 3 Mr. Magic	▶ 259
 4 China Grove	▶ 31
 5 Masquerade	▶ 25

In addition to the above recordings, Underground Sound Studio was also a commercial studio open to the public. The following is a discography of records recorded at Underground Sound (<https://www.discogs.com/label/314036-Underground-Sound-Largo-MD>)

Artist	Title (Format)	Cat#	Year
 The Irish Breakdown	The Irish Breakdown (LP)	4681	Unknown
 The Slickee Boys	Hot And Cool (7", EP, Mono, RP)	D. 001	1978
 The Irish Tradition	The Times We've Had (CD, Album, RE)	GLCD 1063	2007
 The New Mode Grass	A Fresh Cut (LP, Album)	NMG 1000	1980
 Pentagram	1972-1979 (CDr, Comp, Unofficial)	PCE 005	Unknown
 Pentagram	1972-1979 (Vol. 2) (LP, Album, Comp, Unofficial)	PCE 011	1999
 Pentagram	1972-1979 (Vol. 2) (CDr, Comp, Unofficial)	PCECD 001	Unknown
 Pentagram	First Daze Here: The Vintage Collection (Comp, Single) 4 2 versions	RR7311	2016
 Pentagram	First Daze Here Too - The Vintage Collection (Comp) 4 5 versions	RR7312	2016
 The Irish Tradition	The Times We've Had (LP, Album)	SIF 1063	1985
 Irish Breakdown	The Best Of The Irish Breakdown (LP, Album, Comp)	WSLP004	1981

AUGUST - S/T LP



August - S/T LP:

All Night Long / Now I'm Ready / Here I Am / I Remember When / I've Got Your Number // Time To Party Again / Just A Working Man / Keep on Trying / It's Been So Long / Love in My Dreams
black vinyl with printed inner sleeve
Rising Star API01, 1978

Lineup: John Piette - guitar / Bill Weisband - vocals / Nick Pizzola - drums / Ray Brand* - guitar, slide / Mike Smoot* - bass / Bette Ojala - backing vocals / Peter D'Antonio - backing vocals

Label notes:

Recording Info: *Appears courtesy of Buckeye.
Recorded at Underground Sound, Largo Maryland, Summer of 1978. Engineered by Peter D'Antonio, Jerry Ressler. Produced by August Productions, Inc.

Notes: The printed inner sleeve says the "New" August lineup is: Jerry Bozic - drums / Howard Brundage - bass, vocals / John Piette - guitar, vocals / Steve Allison - guitar, vocals

Reviews:



August - Bring It On Home 7":
 Bring It On Home // On My Mind
 black vinyl (no PS)
 Underground Sound 45-US001, 1977

Lineup: John Piette / Darrell Breedon

Label notes:

Recording Info: Recorded at Underground Sound.

Notes:

Reviews:

My copy of this is warped and beat to hell--anyone have one in better shape (or a copy of the August LP) for sale or trade? If so, [email me!](#)



While the new isolated rooms were extremely useful, I began focusing on the acoustics or sound quality of the new control room, which I was not happy with. I carried out a search of the scientific literature and to my surprise, there were no published articles describing control room design research. I did find one magazine article by Don and Carolyn Davis of Synergetic Audio Concepts, describing a new approach called Live End Dead End (LEDE), using a new diagnostic tool called Time Delay Spectrometry (TDS), invented by Richard Heyser. After studying LEDE principles, I needed to implement a sound diffusing, as opposed to a sound absorbing, surface for the rear wall of the room and a broad bandwidth absorbing front. This design was 180 degrees from what current control rooms were using. Further research on

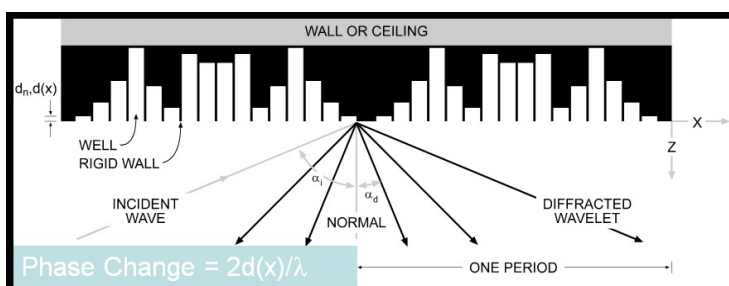


Figure 10. Quadratic Residue Diffusor (QRD®) consisting of divided wells, whose depths are based on mathematical number theory

diffusion led to the work of Manfred Schroeder, related to reflection phase gratings, using quadratic residue and primitive root number theory sequences. After studying this research, I realized that these new number theoretic diffusors were actually 2-dimensional periodic surfaces. Now at the time I was studying 3-dimensional periodic surfaces in the form of crystals, using x-

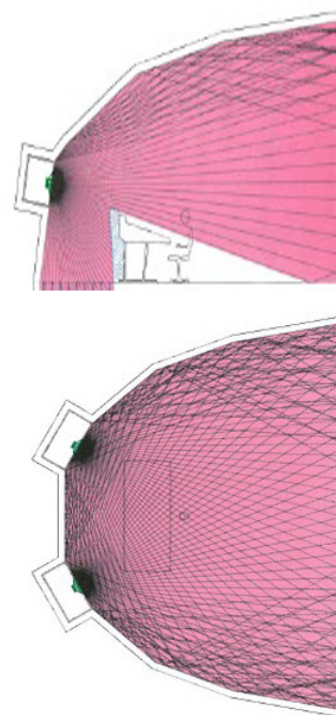


Figure 11. RFZ created by splayed ceiling and walls

ray crystallography. Therefore, I was very familiar with this theory and was able to design, model, build and test these new diffusing surfaces using the new TDS technology.

The rear wall was now solved, and I focused my attention on the “dead” end or front of the room. This led to the development of the reflection free zone (RFZ™) concept, Figure 11, which used splayed, massive and broad bandwidth absorptive surfaces on side walls and ceiling, to both absorb and reflect incident sound from the adjacent monitors to the rear of the room, where it was uniformly diffused, creating an accurate and enveloping monitoring environment and a sense of passive surround.

I presented this research at the 74th AES Convention in New York in 1980. There I met Don and Carolyn Davis and Bob Todrank, owner of Valley Audio, who used this technology for the first time to design and build Acorn Sound Recorders for the Oak Ridge Boys, Fig. 12.. Following the success of this project, the RFZ/RPG design quickly became a defacto international standard readily accepted by studio designers and launched RPG Diffusor Systems, Inc. in 1983

'Come On In'

Valley Audio invites you inside ACORN SOUND RECORDERS' new control room.

When the Oak Ridge Boys wanted a new control room for their Acorn Sound Recorders in Hendersonville, Tn., they entrusted their chief engineer, Jimmy Tarbutton, with the responsibility of contracting the best services available for the job. He chose Bob Todrank and Valley Audio.

"I wanted the latest in control room technology with a large functional space. Since we were building from the ground up, it had to be right. I chose Bob to completely design the room and oversee the construction. I wanted Valley Audio's technical services to do our equipment interface because of their more than ten years' experience in audio installations, and selected the new Harrison MR-4 32-24 console based on its flexibility and innovative design. We then selected a long term associate, Jim Aanderud of Viking Enterprises as our contractor."



The Oak Ridge Boys
Circle #048 on Reader Service Card



Rear wall showing diffusion reflection

Todrank says, "Since Jimmy wanted a large, open room with a very 'live' feel, I designed a control room incorporating the latest 'LEDE (Live End/Dead End)' concepts. I chose a rear wall diffuser system designed by Peter D'Antonio of RPG Diffusor Systems, Inc., to accomplish a widely dispersed sound field around the console. We built and installed the very first of its kind anywhere and I was thrilled with the results. I also used our TECRON TEF equipment to place the final room interior treatments. The proper implementation of the LEDE design theory along with the use of on-axis monitoring, correct room geometry and acoustical equalization (selective diffusion/reflection/absorption techniques) has resulted in a room I'm very proud of."

The Oaks are proud of it too. Duane Allen's reaction...."It's like a dream come true."

*LEDE is a registered trademark of Synaptic Audio Concepts



VALLEY AUDIO

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AUGUST 1984

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Figure 12. Oak Ridge Boys' Acorn Recorders